

REMARKS/ARGUMENTS

1. Summary of the Office Action

Claims 1-38 stand rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over U.S. Patent Publication No. 2002/0195422 A1 (hereinafter "Sievers"), in view of U.S. Patent No. 4,226,666 (hereinafter "Winters").

2. Response to 35 U.S.C. § 103(a) Rejections

Reconsideration of this application is respectfully requested. The claims of this application are patentable over the references for at least the reasons discussed below.

Claims 1, 12, 23 and 32 have been rejected under 35 U.S.C. 103 as being obvious in view of Sievers. Sievers describes a process for milling copper metal from a substrate having an exposed copper surface. The process "includes absorbing a halogen gas onto the exposed copper surface to generate reaction products of copper and the halogen gas; removing unreacted halogen gas from the surface; and directing a focused ion beam onto the surface to selectively remove a portion of the surface comprising the reaction products" (Sievers, Abstract).

Sievers does not, however, teach or suggest "removing the suspected ion contaminated area by a non-contaminating process", as recited in the present independent claims. Indeed, the Office Action concedes that Sievers is silent to the use of a non-contaminating process to remove the contaminated area. This alone is sufficient for the present claims to be patentable over Sievers.

Claims 1, 3-6, 8-12, 14-17, 19-23, 25-28, 30-32 and 34-38 have been rejected under 35 U.S.C. 103 as being obvious in view of Sievers when considered in combination with Winters. Winters presents a method for etching a surface by exposing the surface to be etched both to at least one noble gas halide and to radiation at about the same time for a time sufficient to etch the surface to the desired extent" (Winters, Col.2, lines 11-14)

However, to establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art references, when combined, must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on the applicant's disclosure. In re Vaeck, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). In the present case, there has been no showing of the required motivation for the suggested combination, nor has there been any showing of a reasonable expectation of success. Consequently, the conclusion of obviousness is fatally flawed and the rejections should be removed.

Among other things, the Office Action concedes that Sievers fails to teach or suggest the use of a non-contaminating process as recited in the present independent claims. In an attempt to cure these deficiencies, the Office Action cites Winters and suggests that it would have been obvious to one of ordinary skill in the art to combine the teachings of these references. This conclusion finds no support in the references, however. Indeed, the Office Action cites no motivation for such a combination. This rote invocation of a general desire to make existing technologies better is an insufficient basis for reaching a conclusion of obviousness. Instead, what is needed is an actual showing of motivation to make the desired combination.

In this case, each of the references themselves provides what appears to be a complete solution for etching of a substrate. Neither of the references suggests that additional processing steps are needed to improve the etching techniques disclosed therein. For example, according to Sievers, his etching techniques provide for accurate machining of desired areas without affecting the surrounding (Sievers, [0015], lines 6-8). For his part, Winters indicates that his techniques provide a process for etching using electron beam radiation and does not require any additional steps after the exposure to the electron beam in order to achieve etching. Nothing in these disclosures would suggest that any combination of these processes is desirable, consequently there exists no motivation for the recited combination.

In addition, there has been no showing that one would (or even could) expect success in combining the teachings of the references. In particular, Sievers describes the steps of

“removing unreacted halogen gas from the surface; and directing a focused ion beam onto the surface to selectively remove a portion of the surface comprising the reaction products” (Sievers, Abstract) while Winters includes the steps of “exposing the surface to be etched both to at least one noble gas halide and to radiation at about the same time” (Winters, Col.2, lines 11-14). It will be noted that Sievers teaches removing of the gas before directing a focused ion beam onto the surface while Winters teaches exposing the surface to the gas and the radiation at about the same time. Indeed, Sievers teaches away from Winters. Nothing in the references (nor in the Office Action) suggests how the techniques of Sievers could be adapted to operate in an environment, such as that described by Winters, where the radiation and gas are present at about the same time. Consequently, there has been no showing of an expectation of success resulting from the combination of these references.

Rather than making out a proper *prima facie* case of obviousness then, it appears the teachings of the present application have been used as a blueprint to gather together and assemble various components of the prior art in the manner contemplated by the present applicant. This is a classic example of the use of hindsight reconstruction, and cannot properly be used as grounds for rejecting the present claims. Indeed, the U.S. Court of Appeals for the Federal Circuit has rejected such applications of hindsight by specifically indicating that when an obviousness rejection is made based upon a combination of references, an examiner “must show reasons that the skilled artisan, confronted with the same problems as the inventor *and with no knowledge of the claimed invention*, would select the elements from the cited prior art references for combination in the manner claimed.” *In re Rouffet*, 149 F.3d 1350, 1357 (Fed. Cir. 1998) (emphasis added). Merely indicating, as in the present Office Action, that the claimed invention would be obvious to one of ordinary skill in the art based on the combination of the references is inadequate.

As demonstrated above, the present Office Action deconstructs the subject matter of the claims into its constituent components, states where each such component may be found in one of the cited references, and then concludes that it would have been obvious to combine the references to arrive at the claimed invention. This bare bones analysis is not sufficient to support the present rejections. The burden is on the Examiner to show *why* one would be so motivated as to come up with the combination. *Rouffet* at 1357-1358 (“If such a rote invocation could suffice

to supply a motivation to combine, the more sophisticated scientific fields would rarely, if ever, experience a patentable technical advance. Instead, in complex scientific fields the [Patent Office] could routinely identify the prior art elements in an application, invoke the lofty level of skill, and rest its case for rejection. To counter this potential weakness in the obviousness construct, the suggestion to combine requirement stands as a critical safeguard against hindsight analysis and rote application of the legal test for obviousness.") Accordingly, the present rejections should be removed.

3. Conclusion

Having tendered the above remarks and amended the claims as indicated herein, the Applicant respectfully submits that all rejections have been addressed and that the claims are now in a condition for allowance, which is earnestly solicited.

If there are any additional charges, please charge Deposit Account No. 02-2666. If a telephone interview would in any way expedite the prosecution of the present application, the Examiner is invited to contact Jaina Chua at (408) 947-8200 ext. 213.

Respectfully Submitted,

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